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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/554,912    08/18/00    HOLMBERG

P    9847-0058-6X

EXAMINER

QM02/0409

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ART UNIT    PAPER NUMBER

3744  
DATE MAILED:

04/09/01

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.

09/554,912

Applicant(s)

HOLMBERG ET AL.

Examiner

William C Doerrler

Art Unit

3744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 37-78 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 37-78 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

## **DETAILED ACTION**

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

The last US reference was not considered since the patent number appears to be wrong.

### ***Specification***

The disclosure is objected to because of the following informalities: In line 27 of page 2, "SEES" should be --SMES--.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims s 37-79 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In at least the independent claims, SMES should be defined when it is first claimed. In claim 58, it is unclear if the first second and third materials are the same. In claim 60, it is unclear how three materials which are identical can have different properties. A patentability determination cannot be made for claim 60. In claims 73 and 74, it is unclear which part or parts are made of the claimed material.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 37-40,44-57,59,61,62 and 68-74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Prueitt in view of Elton et al.

Prueitt discloses applicants' basic inventive concept, an energy storage system using a coiled superconductor with a switch (see figure 4), substantially as claimed with the exception of protecting the superconductor with two semi-conducting layers separated by an insulation layer and means to keep the outer semi-conducting layer at a ground potential. Elton shows this feature to be old in the superconductor art. It would have been obvious to one of ordinary skill in the art at the time of applicants' invention from the teaching of Elton to modify the superconducting energy storage

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system of Prueitt by protecting the superconductor with a layer of semiconductor material which is surrounded by a layer of insulation which is in turn surrounded by an outer semiconductor layer which is kept at ground potential to avoid corona discharge to provide an efficient and safe superconductor wire. In regard to claim 40, Prueitt talks of the need to cool the contents of box 10 to cryogenic temperatures. One of ordinary skill in the art would consider it obvious to insulate box 10 to preserve cryogen. Such insulation would surround the superconductor, since the box surrounds the superconductor. In regard to claims 44-49, the claimed ranges are seen as typical to semiconductors, thus obvious from the teaching of Elton et al.

Claims 41-43, 58 and 75-78 are rejected under 35 U.S.C. 103(a) as being unpatentable over Prueitt in view of Elton et al as applied to claims 37-40, 44-57, 61, 62 and 68-74 above, and further in view of the '195 UK reference from the International search report.

Prueitt, as modified, discloses applicants' basic inventive concept, an energy storage device using a superconductor with multiple layers of insulation, substantially as claimed with the exception of a fluid passage through the center of the superconductor and using ethylene propylene (propylene) rubber as the insulation layer. The '195 UK reference shows these features to be old in the superconductor art. It would have been obvious to one of ordinary skill in the art at the time of applicants' invention from the teaching of the '195 UK reference to modify the superconducting device of Prueitt by providing a cryogen through the middle of the superconductor to ensure a proper temperature and to use EPR as the insulation to ensure effective insulation.

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Claims 63-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Prueitt in view of Elton et al as applied to claims 37-40,44-57,61,62 and 68-74 above, and further in view of Donaldson.

Prueitt, as modified, discloses applicants' basic inventive concept, an energy storage device using a superconductor with multiple layers of insulation, substantially as claimed with the exception of specifying that the device can be used for high voltage applications. Donaldson shows this feature to be old in the superconductor art in column 4 line 29. It would have been obvious to one of ordinary skill in the art at the time of applicants' invention from the teaching of Donaldson to modify the superconducting device of Prueitt by using such a device in a high voltage transfer situation to ensure constant output voltage. Official Notice is taken that AC/DC converters are well known in the high voltage transfer art and as such would have been an obvious modification for an ordinary practitioner in the art.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Breitenbach et al, Takaoka et al, Spenadel et al and Salahshourian all show superconductors having a semi-conductor layer touching the superconductor then an insulation layer followed by an outer semiconductor layer. Womack et al, Vulis et al, Kafka and Iwata all show power cables with a central passage for a cooling fluid. Ohno et al show a superconductive device with insulation which has


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a matching coefficient of thermal expansion. Gold et al, Ehrhart et al and Boenig each show SMES systems linked to high voltage transmission systems.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C Doerrler whose telephone number is (703) 308-0696. The examiner can normally be reached on Monday-Friday 6:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Buiz can be reached on (703) 308-0871. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7764 for regular communications and (703) 308-7764 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0861.

  
William C Doerrler  
Primary Examiner  
Art Unit 3744

WCD  
April 5, 2001